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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,757	03/04/2004	Deuk-hwan Chang	1349.1358	5276

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EXAMINER

MORRISON, THOMAS A

ART UNIT	PAPER NUMBER
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3653

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/791,757

Applicant(s)

CHANG, DEUK-HWAN

Examiner

Thomas A. Morrison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-18 and 23 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 04 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/4/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Species I (Figs. 3-4, claims 1-18 and 23) in the reply filed on June 29, 2005 is acknowledged. The traversal is on the ground(s) that (1) the non-elected claims 19-22 are so closely related to the elected claims 1-18 and 23 that such claims should remain in the application; and (2) the evaluation of claims 19-22, in addition to the elected claims 1-18 and 23 would not provide an undue burden upon the examiner. This is not found persuasive because the instant application includes claims directed to two (2) patentably distinct species that have substantially different structures and operating parameters. As such, it would be an undue burden upon the examiner to search for the substantially different structures encompassed by these two species.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

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invention. In particular, the recited line feeding mode set forth in independent claim 1 is not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. For claim 1, the omitted structural cooperative relationships are: the structure that allows that pickup roller to selectively move a sheet of paper, as set forth in claim 1. Also omitted is the structure of the drive roller transmitter that allows a driving force to be transmitted to all three rollers during a paper pickup mode, but only two of the rollers during a line feeding mode, as set forth in claim 1.

Regarding claim 4, there is an omitted structural cooperative relationship between the swing gear part, the feed roller part and the first and second drive rollers that is needed to understand how driving force is transmitted according to the rotational direction of the feed roller part.

Regarding claim 5, there is an omitted structural cooperative relationship between the swing gear, the feed roller part and the first and second idle swing gears

that is needed to understand how the selective gear engagement is performed according to the rotational direction of the feed roller part.

Regarding claim 7, there is an omitted structural cooperative relationship between the second idle swing gear and the second drive roller gear that is needed to understand how the driving force is transmitted during the line feeding mode.

Regarding claim 8, it is unclear what is meant by the recited line feeding mode.

Regarding claim 16, it is unclear what structure allows the pickup roller assembly lifter to selectively separate the pickup roller from the paper.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structural relationship between the swing gear part and the first and second drive rollers that allows the swing gear part to selectively transmit a driving force to one of such drive rollers.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4, 16-17 and 23, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,085,420 (Sata).

Regarding claim 1, Figs. 2-4 and 7A-7F show a paper-feeding apparatus of an image forming apparatus (column 1, lines 5-10) having first and second drive roller shafts (10 and 45), and a paper cassette (see also Figs. 10A-12C for the cassette), the paper-feeding apparatus including

a first drive roller (5), rotatably disposed on the first drive roller shaft (10);

a pickup roller assembly (including 12 and 13), rotatably disposed, at a first end thereof, on the first drive roller shaft (10);

a pickup roller (13), rotatably disposed at a second end of the pickup roller assembly (including 11, 12 and 13) to selectively move a sheet of paper in the paper cassette in a first direction, the pickup roller (13) being disposed in a second direction, opposite the first direction, with respect to the first drive roller (5);

a second drive roller (46), rotatably disposed on the second drive roller shaft (45), to press the sheet of paper with a first predetermined pressure against the first drive roller (5); and

a drive roller power transmitter (including 25) transmitting a driving force to the first and second drive rollers (5 and 46) and the pickup roller (13) during a paper pickup mode, and transmitting the driving force only to the first and second drive rollers (5 and 46) during a line feeding mode. See, e.g., column 6 and Fig. 7D.

Regarding claim 2, Figs. 4 shows that the paper-feeding apparatus includes a rotatable feed roller part (23) transmitting the driving force to the drive roller power

transmitter (including gear 25); and a driving motor (21) transmitting the driving force to the feed roller part (23).

Regarding claim 4, Fig. 3 shows that the drive roller power transmitter comprises: a swing gear part (including 28) transmitting the driving force from the feed roller part (23) to one of the first drive roller (5) or the second drive roller (46), according to a rotational direction of the feed roller part (23), wherein the feed roller part (23) rotates in a first rotational direction during the paper pickup mode, and rotates in a second rotational direction opposite the first rotational direction during the line feeding mode. In particular, element 28 is located on the swing axis of elements 41. As such, element 28 can be considered a swing gear part.

Regarding claim 16, Fig. 3 shows a pickup roller assembly lifter (including 19), selectively separating the pickup roller (13) from the sheet of paper. See also Figs. 7A-7F.

Regarding claim 17, Fig. 7B shows that during the paper pickup mode, the pickup roller (13) contacts the sheet of paper.

Regarding claim 23, Figs. show a paper-feeding apparatus of an image forming apparatus (column 1, lines 5-10), including

a first drive roller (5); a pickup roller (13); a second drive roller (46); a swing gear part (28) selectively transmitting a driving force to one of the first drive roller (5) or the second drive roller (46), and a one-way power transmitting part (29) disposed coaxially with the first drive roller (5), transmitting the driving force to the pickup roller (13) only

when the first drive roller (5) is rotated in a first rotational direction. Again, element 28 is located on the swing axis of elements 41. As such, element 28 can be considered a swing gear part.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Sata patent as applied to claim 1 above, and further in view of U.S. Patent No. 6,024,356 (Tanaka et al.). The Sata patent meets all of the limitations of claim 11, except for the pickup roller assembly having a pickup driving gear disposed on the first drive roller shaft; and at least one idle pickup gear disposed between the pickup driving gear and the pickup roller (13) to transmit the driving power from the pickup driving gear to the pickup roller (13). More specifically, the Sata patent meets the limitations of the claim except that it employs a pickup roller assembly with a pair of pulleys and a timing belt (33) in order to transmit driving power to the pickup roller (13), rather than a pickup driving gear and an idle pickup gear between the pickup driving gear and the pickup roller. For example, the tanaka et al. patent shows a pickup roller assembly with a pickup driving gear (10a) disposed on a first drive roller shaft (1); and an idle pickup gear (9) disposed between the pickup driving gear (10a) and a pickup roller (6) to transmit driving power from the pickup driving gear (10a) to the



pickup roller (6). These two elements were art recognized equivalents at the time of the invention in those transmission applications where it is immaterial whether the belt and pulley arrangement or gear train arrangement is used for transmitting driving power to a pickup roller. Therefore, one of ordinary skill would have found it obvious to substitute a gear train for the timing belt and pulleys of the Sata patent to facilitate transmission of driving power to the pickup roller as suggested by the Tanaka et al. patent at column 1, lines 20-31.

Regarding claim 12, Figs. 3 of Tanaka et al. shows that the pickup roller assembly further comprises a pickup roller gear (4a) positioned coaxially with the pickup roller (6), wherein the idle pickup gear (9) is disposed between the pickup driving gear (10a) and the pickup roller gear (4a), and transmits the driving power from the pickup driving gear (10a) to the pickup roller gear (4a).

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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